~~WHAT IS CLAIMED IS:~~ IN THE CLAIMS

1. (currently amended) A wireless ~~Crest Factor reduction~~Peak Reduction Equalizer circuit for use with multi-carrier signals in a wireless communication system to enhance the linearity and performance of the amplifier, in any wireless network, ~~particular~~ wireless cellular, Personal Communication System (PCS), wireless Local Area Network (LAN), Wireless Wide Area network (WAN) line of sight microwave, military, and satellite communication systems and any other none wireless applications, the ~~Crest Factor reduction~~ Peak Reduction Equalizer circuit comprising:

~~□A~~ a multi-carrier receiver for the ~~Crest Factor reduction~~Peak Reduction Equalizer of IF or RF input signal to amplifier~~. If~~ wherein the input signal is baseband then the multi-carrier receiver is bypassed~~.~~;

~~□A~~ a digital signal processing block to reduce the ~~Crest Factor~~ peak of the multi-carrier input signal~~.~~;

~~□A digital signal processing block to limit or clip the amplitude of the multi-carrier signal.~~

~~□ A~~a digital signal processing block that converts the ~~amplitude clipped or limited~~ peak reduced multi-carrier baseband to baseband representative of individual carrier signals~~.~~;

~~□A~~ a digital signal processing block that ~~filters~~ equalizes the baseband representative of individual carrier ~~baseband signal to remove unwanted signal produced due to clipping or limiting the multi-carrier signal amplitude.~~to maintain the signal emission and quality requirements;

~~□A~~ a digital signal processing ~~signal~~ function that up converts the ~~filtered~~ equalized baseband representative of each carrier to its original baseband frequency~~.~~;

~~□A~~ a multi-carrier transmitter block that prepare the ~~Crest Factor reduced~~peak reduced multi-carrier signal for delivery to multi-carrier amplifier~~.~~;

2. (currently amended) The ~~Crest Factor reduction~~Peak Reduction Equalizer circuit according to claim 1, wherein multi-carrier input signal from the wireless transmitter is sampled using sub-harmonic sampling technique at the input frequency or at an intermediate frequency.

3. (currently amended) The ~~Crest Factor reduction~~Peak Reduction Equalizer circuit according to claim 1, wherein the multi-carrier input signal from the wireless transmitter is sampled using sub-harmonic sampling technique at the input frequency or at an intermediate frequency and the digitized multi-carrier input signal is decimated to the appropriate number of samples per symbol for further digital signal processing.

4. (currently amended) The ~~Crest Factor reduction~~Peak Reduction Equalizer circuit according to claim 1, wherein the multi-carrier input signal from the wireless transmitter is baseband and is sampled using Nyquist sampling technique and interpolated to produce the baseband multi-carrier signal with appropriate number of samples per symbol.

5. (currently amended)The ~~Crest Factor reduction~~Peak Reduction Equalizer circuit according to claim 1, wherein the multi-carrier input signals from the wireless transmitter are in bit domain and the bit domain baseband signals are up converted, combined and interpolated to produce the digital multi-carrier baseband signal with appropriate number of sample per symbol.

6. (currently amended)The ~~Crest Factor reduction~~Peak Reduction Equalizer according to claim 1, wherein the digital multi-carrier signal is ~~amplitude clipped or limited by a limiting or clipping function.~~peak limited by a peak reduction equalizer function, wherein the ~~The amplitude~~ peak limited multi-carrier signal is then down converted to single channel baseband signals by digital down conversion, wherein. ~~The~~ individual baseband signals are low pass filtered, ~~-~~equalized and up converted back to their original baseband frequency before all individual baseband signals being combined again to produce the multi-carrier ~~Crest Factor reduced~~peak reduced baseband signal.

7. (currently amended) The ~~Crest Factor reduction~~Peak Reduction Equalizer according to claim 1, wherein the multi-carrier signal ~~amplitude clipping or~~peak limiting can be perform in analog domain at an intermediate frequency (IF) , radio frequency, or analog baseband before being digitized.

8. (currently amended) The ~~Crest Factor reduction~~Peak Reduction Equalizer according to claim 1, wherein the ~~amplitude~~ peak limited digital multi-carrier baseband signal is converted to single channel baseband signals by digital down conversion.

9. (currently amended) The ~~Crest Factor reduction~~Peak Reduction Equalizer circuit according to claim 1, wherein the ~~Crest Factor~~peak reduced signal is digitally up converted and converted to analog domain at an intermediate frequency or the output frequency.

10. (currently amended)The ~~Crest Factor reduction~~Peak Reduction Equalizer circuit according to claim 1, wherein the received signal strength of the input signal to ~~Crest Factor reduction~~Peak Reduction Equalizer circuit and transmit signal strength of the output from the ~~Crest Factor reduction~~peak Reduction Equalizer circuit is dynamically measured~~s~~ to adjust the total gain of the ~~Crest Factor reduction~~ Peak Reduction Equalizercircuit to ~~zero~~unity.

11. (currently amended)The ~~Crest Factor reduction~~Peak Reduction Equalizer circuit according to claim 1 and subsequent claims, when it is used in wireless cellular, wireless PCS, wireless LAN, microwave, wireless satellite, none wireless ~~amplifiers~~communication transmitters, and any wireless communication systems used for military applications.

12. (currently amended)The ~~Crest Factor reduction~~Peak Reduction equalizer circuit according to claim 1, wherein the Digital Signal Processing (DSP) function can be implemented in programmable logic, Field Programable Gate Array (FPGA), Gate Array, Application Specific Integrated Circuit (ASIC), and DSP processor.